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Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, September/ October 2018

Programme Name: M.Tech (PLE) Semester : III
Course Name : Equipment & machinery Maintenance Time : 03 hrs

Course Code : MECH 7003 Max. Marks : 100

Nos. of page(s) :

Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Describe various types of faults in three phase electrical system and explain with schematic diagram.	4	CO4
Q 2	Indicate functioning of charge air and lube oil system in turbo-charged marine diesel engines. Mention various protective alarms provided in above circuits as alarm and protect it from seizure.	4	CO1
Q 3	What are the pre requisite for selection of location for SPM system?	4	CO6
Q 4	Explain steps required for improving energy efficiency in all compressors.	4	CO1
Q 5	Elaborate major causes of failures and types of faults observed that occur in electronic instruments & telecom system	4	CO3
	SECTION B		
Q 6	Write down the chemistry of fire and theory for extinguishing of petroleum fire. Elaborate on methods used for extinguishing petroleum fire. Explain terms BLEVE and boil over occurring during tank fire. What are the goals of loss control management?	10	CO5
Q 7	Rim seal fire on large crude oil storage tank is observed. How will you control it? State actions to be taken so that fire does not spread on other tanks. Describe the method to confirming the soundness of weld carried out on sketch plate and annular plate welding.	10	CO2
Q 8	Elaborate various types of instruments used for enhancing the safety of equipment's. Why ESD system is provided in logic?	10	CO3

Q 9	Explain the following: a) Fire hoses do not perform as required during field operation. This may be due to wear & tear of fire hoses. Explain how to reduce hoses damages during	5	CO5		
	handling.b) Effects of electric shock on human beings. State four stages of the effect of a current flow through the body:	5	CO4		
	OR				
	Explain the following:				
	a) Typical arrangement of Fixed Foam Pourer system.b) Use of fire proximity & fire entry suit in industry. Illustrate with drawing fire		CO5		
	clock and purpose for providing it.	5	CO5		
	SECTION-C				
Q 10	More than 60 % requirement of crude oil is imported & unloaded through submarine pipelines. Draw schematic diagram of various SPM system used for unloading of crude from tankers. Indicate major components of SPM system. Illustrate the yearly maintenance activities taken up in SPM system to have trouble free unloading operation from floating tanker to submarine pipeline.	20	CO6		
	Oil spill in sea can be disastrous. Explain Oil Spill Preparedness and Response (Tier system) to control & collect oil spill in sea.				
Q 11	Crude oil spillage from 65000 KLS tank has been to you. What are is the immediate actions required? Describe the process for taking up the maintenance for replacement of tank bottom plate including inspection for storage tank. Write down in short procedure for tank commissioning. OR You have to carry out the major overhaul of crude oil operated engine (Bore/ stroke:	20	CO2		
	325/370 mm operating at 750 rpm developing 3000 BHP. Write down maintenance activities to be undertaken during major overhaul covering all major assemblies/ sub-assemblies. Mention the clearances limits for replacement of piston rings and main bearing. How will you carryout health assessment for above engine.	ıblies/ sub-			